|  |  |
| --- | --- |
| **Output** | **Activities** |
| **Outcome 1: Land and Water Productivity** | |
| 1. Opportunities for enhancing water resource management to reduce community vulnerability in various contexts analyzed.   2. Demonstration and learning sites on innovative options for land and water management established in selected farming systems.   1. Improved and inclusive approaches and methods for delivery at scale of innovative water resources management available for stakeholders | 1.1.Characterize current practices in ESA through identifying formal and informal arrangements for access & use of water resources  1.2. Identify opportunities for using supplementary irrigation in different farming systems of the target country agro-ecologies.    2.1. Set up demonstration and learning sites in target communities   * 1. Conduct and evaluate participatory and inclusive testing of approaches within the demonstration sites for improving access and use of water resources for supplementary irrigation. |
| **Outcome 2: Productivity** | |
| 1. Proven integrated crop-livestock technologies for improved productivity, diversified diets, and incomes delivered in target agro ecologies. 2. Climate smart crop-livestock technologies delivered in targeted semi-arid areas 3. The awareness and use of locally available organic nutrient resources (manure, crop residues, etc) and fertilizer, at community level enhanced 4. The impact of crop residues, forages and other locally available organic resources on productivity quantified and disseminated. 5. Labor saving and gender sensitive technologies delivered in target areas to reduce drudgery while increasing efficiency in the production cycle | 1. Set up trials to validate crop-livestock combinations from Phase I 2. Disseminate legume, cereal, vegetables and forage seed combinations through community seed/seedling systems and agribusiness incubation.   2.1. Farmer participatory experimentation with integrated crop livestock technologies on farm situations, including climate smart inclined options   1. Scaling up and disseminate best bet integrated crop livestock technologies to reach an impact on small scale farmers in a landscape context.   4.1 Establish adaptive field experiments with mineral and animal derived organic manure  4.2 Demonstrate the use and impact of crop residues forages and other organic resources as animal feed and nutrient resources.   1. Conduct extrapolation domain analysis based on GIS and agro-ecology information to establish geographical reach of technologies 2. Support local partners through training on appropriate technology delivery 3. Use crop livestock models for trade-off analysis   5.1 Co-adapt existing mechanization options with target communities |
| **Outcome 3: Markets** | |
| 1. Business models for improved markets’ functionality developed.  2. Collective action models and alternative approaches linking farmers to markets developed (and pilot tested). | 1.1 Conduct Value-chain analysis with specific focus on SI technologies.  1.2 Conduct a stakeholder analysis (stakeholder mapping).  1.3 Develop a value-chain enhancement strategy (including collective action approaches, contract arrangements and standardization).  2.1 Identify and evaluate existing mechanisms that inform farmers about market needs.  2.2 Conduct an analysis of existing baseline survey data and supplement them with qualitative surveys |
| **Outcome 4: Nutrition** | |
| * 1. Improved capacity of farm families and local partners to adopt diverse crops and fodder species   2.1 Reduced postharvest losses due to adoption of improved technologies  3.1 Improved agronomic practices and nutritional quality and accessible for farmer use with nutrient dense crops | 1.1 Packaging and delivery of crop and fodder varieties and associated management practices through Randomized Control Trials (RCT) with iterative review, refining and follow up.    2.1 Packaging and delivery of postharvest technologies through RCT with iterative review, refining and follow up.  3.1 Promote and deploy nutrient rich crop varieties and livestock feed resources in target communities. |
| **Outcome 5: Technology scaling** | |
| 1. Improved understanding of the social, economic and institutional constraints and opportunities to technology adoption from different farm typologies    2. Improved mechanisms for effective linkages and strategic partnerships with public, private and other initiatives for release, diffusion and adoption of validated technologies  3. Gender sensitive decision support tools for farmers to assess technology-associated risk and opportunity developed, tested, and launched.  4. A technology adoption, monitoring and evaluation framework developed and released for use by the project team and scaling partners  5. Developed knowledge sharing centers and learning alliances within existent local and regional institutions including development actors | 1.1 Conduct cost benefit and gender analysis coupled other socio-economic analyses to identify and quantify adoption constraints and opportunities for different farmer contexts  2.1 Map and assess relevant stakeholders to establish dialogue for exploration of mutual synergies for scaling delivery of validated technologies  2.2 Leverage/link and integrate (engagement and outreach) with existent initiatives including government extension systems to support and spur the delivery pathways.  3.1. Identify and communicate gender sensitive decision support technologies in the context of different farm typologies  4.1 Monitor and modify the progress of technology adoption process towards scaling  5.1 Establish knowledge sharing and learning alliances among scaling actors. |